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Usage pattern of artificial water sources by birds on a rapidly expanding university campus in Ghana

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Summary

Increasing community size, inadequate waste management and proliferating water sources have been implicated in changes in the bird community composition of the Legon Campus in Ghana. Rapid population increases of opportunistic species such as Pied Crow *Corvus albus* and Cattle Egret *Bubulcus ibis* have increased the problems they cause to campus users. This study quantifies the use of artificial water sources by campus birds over the mid-dry season 2014, to investigate this as a factor contributing to the recent population expansions. Of the 919 birds belonging to 13 species that utilized the water sources, 51 % were Pied Crows. Birds used the water sources increasingly from early morning through to late afternoon, a pattern that was most pronounced for the Pied Crow. Hoses and standpipes were most frequently used, whereas condensed water from air-conditioners was used the least. As a complementary measure to reduce Pied Crows on the campus, we recommend that the availability of artificial water sources there be limited.

Résumé

Utilisation de points d'eau artificiels par les oiseaux sur un campus universitaire en expansion rapide au Ghana. Une population humaine qui s'accroît, une gestion inadéquate des eaux usées et des points d'eau qui se multiplient sont impliqués dans des modifications de la composition de la population d'oiseaux du Campus Legon au Ghana. Une augmentation rapide de la population d'espèces opportunistes telles que le Corbeau pie *Corvus albus* et le Héron garde-bœufs *Bubulcus ibis* ont aggravé les problèmes posés aux utilisateurs du campus. Cette étude quantifie l'usage des points d'eau artificiels par les oiseaux sur le campus pendant le milieu de la saison sèche de 2014, afin de l'étudier en tant que facteur contribuant à la récente expansion des populations. Sur 919 oiseaux appartenant à 13 espèces qui utilisent les points d'eau, 51% étaient des Corbeaux pie. Les oiseaux utilisaient

les points d'eau de plus en plus depuis tôt le matin jusqu'en fin d'après midi, comportement qui était le plus prononcé chez le Corbeau pie. Tuyaux et colonnes d'alimentation étaient les plus fréquemment utilisés, tandis que l'eau de condensation des climatiseurs était la moins utilisée. Comme mesure complémentaire pour qu'il y ait moins de Corbeaux pie sur le campus, nous recommandons de limiter la disponibilité de points d'eau artificiels.

Introduction

The Legon Campus of the University of Ghana located in Accra, the capital city of Ghana, is one of the few areas that still hold sizeable patches of vegetation within the metropolis. Many animal habitats within the city have been destroyed as a result of infrastructural development. The campus saw a rapid student population increase from *c.* 9,000 in 1998 to *c.* 40,000 in 2015. This together with its attended developmental activities has affected the bird community of the campus in several ways. The campus had been home for 111 species of birds in the 1960s and 1970s but this has since been decreasing (Grimes 2006, Dowsett-Lemaire & Dowsett 2014). In contrast to this general decline in avian diversity, significant increases have been seen in the number of Pied Crows *Corvus albus*, Cattle Egrets *Bubulcus ibis* and Hooded Vultures *Necrosyrtes monachus*, all of which are well known for their association with human settlements (Grimes 2006, Gbogbo & Awotwe-Pratt 2008, Annorbah & Holbech 2012).

To many inhabitants of the campus, the high number of scavenging birds, and Pied Crows in particular, is a nuisance because they roost in large numbers (> 200) on many of the tall African Mahogany *Khaya senegalensis* avenue trees, continuously littering the streets with their droppings and not sparing passers-by (Gbogbo & Awotwe-Pratt 2008). The Pied Crow is particularly noisy and often snatches items like soap and food from residences thereby making it one of the most unpopular bird species among campus users.

The expansion of the campus has created several artificial outdoor sources of water which could be utilised by birds, including storage tanks, water pipes, water hoses and condensed water from air-conditioners (ACs). Because the region has a prolonged dry season from November to April during which birds may have difficulties maintaining water balance we anticipated that dependence on artificial water sources may be high during this period, and that knowledge of the species-specific usage pattern of these water sources might be applied in the control and management of problem species such as Pied Crows and Cattle Egrets. These scavenging birds may have higher water requirements due to their ingestion of toxic or noxious decaying or fermenting food items. Therefore, in this paper, we evaluate the extent to which campus birds utilise artificial water sources during the dry season, and additional steps towards identifying further potential control measures for problem bird species, particularly scavengers.

Study area and methods

The Legon Campus (5°36′N, 0°10′W) comprises an area of 13 km^2 and is situated in the Accra plains of the Greater Accra Region. The climate is characterized by a pronounced gradient of mean annual rainfall ranging from 733 mm to 1118 mm with an altitude between 91 m and 122 m (Decher & Bahian 1999). The campus falls within a relatively arid region in Ghana that experiences a prolonged dry season normally from end of November to beginning of April with a daily mean temperature of *c.* 30°C (Jeník & Hall 1976). The vegetation of the Accra plains is generally dry coastal scrub and thicket but the campus also has woodland or gallery forest with tall trees, mainly *Khaya senegalensis*, *Erythrophleum sp.* and *Millettia thonningii* lining many of the streets. These trees serve the roosting and nesting needs of many bird species. The Legon Campus also has built-up areas including hostels and halls of residence, lecture theatres, departmental blocks and staff bungalows. Many of these are interspersed with low growing grassland and lawns on which several bird species are often seen foraging on seeds, insects and other small animals.

Five categories of artificial water source were identified on the campus for study. These were standpipes, storage tanks, hoses, ACs placed at ground level, and ACs placed at least 2.5 m above ground. Four water sources for each of the five categories were selected on an *ad hoc* basis for the study, covering residential, academic and office areas. The minimum distance between any two water sources was 143 m. For each of the 20 selected water sources, usable water was available for the birds in the form of leakages, dripping water, overflows or puddles formed by the overflows or left-on, depending on their nature. In January 2014 (the middle of the dry season and usually the hottest month in the year) the number of birds observed using the water for drinking, bathing or foraging was counted during three fixed time intervals of two hours; 6h00–8h00 (referred to as early morning), 11h00–13h00 (mid-day) and 16h00–18h00 (late afternoon). Hence, for each of the 20 water sources a total of 6 h of observation was made, producing 24 h of observations per category of water source, and 120 h of observations in all.

In order to quantify the human disturbance levels around the water sources, we also recorded number of human visits within a radius of 5 m around the water sources during each of the 2-h observation periods. We anticipated that human disturbance might limit water usage, hence contributing to differences in use of the five water source categories by birds. All observations were carried out by one observer (ROE) in order to eliminate observer biases. Also, observations were undertaken only when water was available at the sources; the ACs selected were those that were generally switched on throughout daytime.

Mean bird count per category of water source was calculated as $\Sigma x/12$, where 12 is the total number of counts at the four water source in the category and x is the total number of birds counted at each count (four sources, three count periods at each). The standard deviation (SD) was also calculated. We tested the normality of all datasets,

then chose non-parametric statistics due to non-normal data distributions and small sample size. To test whether a species' usage of water was significantly different among the five water source categories, the counts for each category were compared by matching the three time-period counts at each of the four sources, and non-parametric Friedmann tests ($n = 3 \times 4 = 12$, $df = 4$), with Fisher's LSD post hoc tests, were used to test differences between the median bird counts for the five categories of water source. Similarly, in order to assess whether the usage of the five water source categories showed any differences with respect to time of day, total counts for each of the three time periods were compared by matching the four replicate counts (numbered 1–4) for each of the five water source categories; after which non-parametric Friedmann tests ($n = 5 \times 4 = 20$, $df = 2$) and Fisher's LSD post hoc tests were used to determine levels of statistical differences among the median bird count for the three time periods. These tests were done only for species with sufficient data collected (*i.e.* Pied Crow and Cattle Egret) as well as for all species combined. Using the same statistical approach, the numbers of human visits to the water sources were compared with respect to both water source category and time of the day. We used Practistat® software (Ashcroft & Pereira 2003) to perform statistical tests.

Results

Birds visiting the water sources

A total of 919 individual birds belonging to 13 species was recorded at the water sources (Table 1). Approximately 93 % of the birds were seen drinking, 5 % foraged for prey items in the puddles of water, and 2 % bathed. The Pied Crow constituted 50.7 % of all visits, followed by Cattle Egret (22.3 %), Laughing Dove *Streptopelia senegalensis* (10.8 %), Yellow-billed Shrike *Corvinella corvin*a (7.0 %) and swifts (Apodidae) (4.8 %); these five species collectively constituted over 95 % of the visits recorded, with the remaining eight species constituting less than 5 %.

Temporal patterns in the usage of water sources by birds

The overall number of birds recorded per water source showed an increasing trend from dawn towards dusk, but only the number recorded in the early morning was significantly lower than that recorded for the late afternoon (Table 2). This was largely caused by the number of Pied Crows increasing from morning to afternoon, with the number recorded per water source during late afternoon significantly higher than both early morning and mid-day (Table 2). In contrast, the Cattle Egret did not show any significant differences in its temporal pattern of water usage (Table 2).

Usage patterns of the five water source categories by birds

The birds' overall usage of standpipes, hoses, tanks and ACs above ground was not significantly different, with only ACs ground recording significantly lower usage than

Table 1. Numbers of visits made by 13 bird species to 20 water sources, and the number of people that passed within 5 m of the sources during three periods of the day (see Methods). P = Standpipes; T = Tanks; H = Hoses; AG = Air-conditioners near ground; AA = Air-conditioners ≥ 2.5 m above ground.

	Early morning						Mid-day						Late afternoon						Total	(%)
	P	T	H	AG	AA	**Sum**	P	T	H	AG	AA	**Sum**	P	T	H	AG	AA	**Sum**		
Corvus albus Pied Crow	30	18	18	10	25	**101**	36	32	27	14	19	**128**	78	43	67	10	39	**237**	466	50.7
Bubulcus ibis Cattle Egret	7	12	19	7	13	**58**	12	18	17	5	15	**67**	26	17	14	9	14	**80**	205	22.3
Streptopelia senegalensis Laughing Dove	11	5	2	4	4	**26**	10	9	4	1	8	**32**	8	13	11	5	4	**41**	99	10.8
Corvinella corvina Yellow-billed Shrike	7		5	1	2	**15**	16		1		4	**21**	6	3	13	2	4	**28**	64	7.0
Apodidae swift	2	2		2		**6**	1	5	3	7	4	**20**	1	7	3		7	**18**	44	4.8
Passer griseus Northern Grey-headed Sparrow							1		4		4	**9**			2			**2**	11	1.2
Milvus migrans Yellow-billed Kite		1				**1**		1	2			**3**	1	2	3		1	**7**	11	1.2
Lamprotornis purpureus Purple Glossy Starling			2			**2**							2		2			**4**	6	0.7
Ptilostomus afer Piapiac				1		**1**									4			**4**	5	0.5
Phoeniculus purpureus Green Woodhoopoe										2	1	**3**							3	0.3
Indicator indicator Greater Honeyguide																	2	**2**	2	0.2
Motacilla aguimp African Pied Wagtail									2			**2**							2	0.2
Lybius bidentatus Double-toothed Barbet															1			**1**	1	0.1
Total number of bird visits	**57**	**38**	**46**	**25**	**44**	**210**	**75**	**65**	**60**	**29**	**55**	**284**	**121**	**85**	**120**	**26**	**71**	**423**	**919**	**100**
Number of persons recorded	20	13	26	10	24	**93**	29	11	53	10	27	**130**	29	18	32	15	20	**114**	**337**	

Table 3. Mean counts (± SD, n = 12 throughout) of bird and human visits at five categories of artificial water source.

	Pipes	Hoses	Tanks	ACs above	ACs ground	χ^2	*P*
All birds[1]	21.2 ± 14.0 (a)	18.8 ± 12.9 (a)	15.3 ± 11.7 (a, b)	14.6 ± 8.6 (a, b)	6.9 ± 2.9 (b)	17.717	0.0014
Pied Crow[1]	12.0 ±10.6 (c)	9.2 ± 8.4 (c)	7.8 ± 6.0 (c, d)	6.9 ± 6.5 (c, d)	2.3 ± 1.0 (d)	14.183	0.0067
Cattle Egret[2]	3.8 ± 5.0	4.2 ± 2.7	3.9 ± 2.5	3.5 ± 3.0	1.8 ± 0.9	6.517	0.1637
Humans[1]	6.5 ± 3. (e, g)	9.3 ± 7.1 (e)	3.5 ± 1.6 (f, g, h)	5.9 ± 2.7 (f, g)	2.9 ± 1.3 (f)	19.283	0.0007

[1]Means with similar letters not statistically different in Fisher's LSD *post hoc* tests, after Friedmann tests (n = 3 × 4 = 12, df = 4) showed significant overall difference. [2]No significant difference in Friedmann test.

Table 2. Mean numbers (± SD, n = 20 throughout) of bird and human visits counted at artificial water sources in three periods of the day on the University of Ghana Campus, Legon.

	Early morning	Mid-day	Late afternoon	χ^2	*P*
All birds[1]	10.7 ± 7.0 (a)	14.6 ± 7.9 (a, b)	20.8 ± 15.7 (b)	6.700	0.035
Pied Crow[1]	5.0 ± 3.9 (c)	6.3 ± 4.8 (c)	11.9 ± 10.9 (d)	9.100	0.033
Cattle Egret[2]	2.9 ± 2.2	3.4 ± 2.8	4.0 ± 4.1	0.625	0.732
Humans[2]	4.7 ± 2.5	6.5 ± 6.7	5.7 ± 2.7	4.575	0.102

[1]Means with similar letters not statistically different in Fisher's LSD *post hoc* tests, after Friedmann tests (n = 5 × 4 = 20, df = 2) showed a significant overall difference.
[2]No significant difference in Friedmann test.

pipes and hoses (Table 3). Again, this result was largely due to the Pied Crow displaying significantly lower counts at ACs ground than both pipes and hoses (Table 3). The Cattle Egret showed no significant differences in usage of the five source categories (Table 3).

Human presence around the water sources

The total number of human visits observed at the water sources over the study period was 337 (Table 1). In relation to the time of day, no significant differences were found (Table 2). In contrast, the number of human visits to hoses was significantly higher than that to tanks, ACs above ground and ACs ground, but significant differences did not exist between hoses and pipes, nor between tanks, pipes and ACs above, nor between tanks and ACs above or ground (Table 3). Hence it appears that disturbance levels are highest around hoses, and least around tanks and ACs.

Discussion

In tropical arid areas, artificial water points can enhance biodiversity significantly, including that of the avifauna (James *et al.* 1999, Rosenstock *et al.* 1999, O'Brien *et al.* 2006). In the coastal areas of the Dahomey Gap in West Africa, the significance of water sources to the survival of birds is particularly important between November and April, when their water loss is increased as a result of the dry, hot weather (Bartholomew & Cade 1963, Wolf & Walsberg 1996, Tieleman & Williams 2002, Klaassen 2004). During this period, natural water sources may be few and distant on the Accra plains, and some bird species may depend on artificial water sources, although others (*e.g.* frugivores and nectarivores) may subsist on metabolic water and water in their food (Bartholomew & Cade 1963, Dawson 1982, Nicolson & Fleming 2003).

In this study, only 13 bird species were observed using the artificial water sources, with most species apparently not needing them. Out of the 13, the Pied Crow made

most visits, followed by the Cattle Egret. The abundance of the Pied Crow, Cattle Egret and Hooded Vulture on the Legon Campus and their relationship with human food waste are well established (Gbogbo & Awotwe-Pratt 2008, Annorbah & Holbech 2012, Kuranchie *et al.* 2013), but we did not record the Hooded Vulture at the water sources. Skead (1974) reported the Pied Crow to drink water regularly throughout the year in semi-arid areas of South Africa. Its dominance around the water sources may indicate that its water requirements are higher than the other species and the proliferation of the water sources probably contributes to its abundance on the campus. Corvids are among the most intelligent and adaptable avian opportunists (Seed *et al.* 2009), and Pied Crows were the first birds to discover the availability of condensed water from air-conditioner outlets at Legon (LHH pers. obs.). They are also relatively tolerant of human presence and disturbance (Burger & Gochfeld 1991, Skagen *et al.* 1991, this study).

Temporal variations often exist in the use of water sources by birds (Skead 1974). Similarly, we recorded more bird visits to water sources towards the end of the day, especially by the Pied Crow, indicating that water needs are highest towards the end of the day. Temperatures are highest and humidity lowest from noon to early afternoon, and we believe that the increased abundances of birds around the water sources towards dusk result from prolonged high respiratory and cutaneous water loss increasing water demands in the late afternoon (Wolf & Walsberg 2002, O'Brien *et al.* 2006). Drinking more water at the end of the day would also prevent or limit dehydration during the night.

Among the five source types, dripping water from ground-based AC units was least used by birds, including the Pied Crow, while hoses and standpipes were the most frequently used. Since the number of people visiting standpipes and hoses was higher than the other water source categories, we conclude that human presence did not deter the birds from using them, indicating that the birds' use of artificial sources is determined largely by preference, as found by Dean *et al.* (2006) and Londei (2010).

Although the increasing number of scavenging birds has been attributed to the combined effect of the presence of tall trees used for nesting and roosting, increased human population, and associated problems of waste management (Gbogbo & Awotwe-Pratt 2008) as well as expansion of managed lawns and grasslands (Annorbah & Holbech 2012, Kuranchie *et al.* 2013), our study has shown that Pied Crows use water sources on the campus more than other bird species. This suggests that reducing the access of Pied Crows to artificial water sources might constrain their use of the campus, and therefore constitute an additional scavenger bird control measure, although proper waste management is paramount. The recent strategy by certain units of the university community to deal with dripping water from AC vents by consolidating vented water from several air conditioners and channelling it directly into the ground, along with further water management strategies such as repairing leakages and controlling overflows from pipes and tanks, might complement proper waste management in reducing crows and other problem bird species on the campus.

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Hooded Vultures *Necrosyrtes monachus* in Fajara, coastal area of The Gambia, between 1978 and 1981

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Summary

A 33-month study, 1978 to 1981, in Fajara, The Gambia, showed that Hooded Vultures *Necrosyrtes monachus* were resident on a 24 ha campus (seen on 98.2 % of 831 observation days). The numbers of Hooded Vultures seen during 79 standard walks varied between 0 and 34 (average 2.07, 95 % confidence interval 1.19–2.97). There was little monthly variation in numbers, but four significant termite emergences resulted in up to 34 Hooded Vultures attracted to feed.

Résumé

Les Vautours charognards *Necrosyrtes monachus* à Fajara, region côtière de Gambie, entre 1978 et 1981. Une étude sur 33 mois, de 1978 à 1981, à Fajara, Gambie, a montré que le Vautour charognard *Necrosyrtes monachus* était résident sur un campus de 24 ha (vu dans 98,2 % des jours d'observation). Le nombre des Vautours charognards aperçus lors des 79 parcours-type a varié de 0 à 34 (moyenne 2,07, intervalle de confiance 95 % 1.19–2.97). Il y a eu peu de variations dans les nombres mensuels, mais quatre envols significatifs de termites ont attiré jusqu'à 34 Vautours charognards venus se nourrir.

Introduction

Ogada & Buij (2011) reported that Hooded Vulture *Necrosyrtes monachus* populations are in rapid decline across Africa, and have decreased significantly across the continent over the past 40–50 years (mean decline 62%; range 45–77%). However, they note that data from several countries, including The Gambia, are limited. Barlow & Fulford (2013) documented the numbers of Hooded Vultures along a 10 km driven transect in a coastal area of The Gambia during a seven-month study in 2005, as part of a process to create a baseline for the future assessment of

population trends in the country. Gore (1990) described the Hooded Vulture as an abundant resident throughout The Gambia, but without quantitative data. This paper provides data that support Gore's assertion that Hooded Vultures were abundant in an area of peri-urban parkland, in coastal Gambia, between 1978 and 1981.

Study area and methods

A detailed study of avifauna of the 24 ha campus of the Medical Research Council, in Fajara, coastal Gambia, was carried out between 1978 and 1981. The campus was a mixture of low density housing and laboratories, in a parkland setting with gardens and a variety of trees in open grassed areas. The campus (13°47′37″N, 16°68′84″W) is in the same urban area as one section of the transect monitored by Barlow & Fulford (2013), which ended at a point (Serrekunda General Post Office) *c.* 2 km from the study campus.

Between June 1978 and the end of June 1981 (except for the four months December 1979 to March 1980) two sets of data were collected during a total of 33 months. The first is a record of the presence of a species at any point in the campus during a day. I lived, worked and regularly walked the campus, and the number of observation days per month varied between 17 and 27 (mean 25) totalling 831 days. The second data set records the numbers of all species counted on a consistent 1.5 km circular walk around the campus between 17h00 and 18h30, as an index of the bird population on the campus. Seventy-nine counts were taken during the 33 months of the study (mean 2.4 per month). Both data sets included birds perched or flying over the campus; vultures in flight but beyond the borders of the campus were not counted. In addition, observations were recorded of the numbers of Hooded Vultures attracted to the campus by sudden emergences of alate termites. The risk of double counting Hooded Vultures was minimised by taking the following precautions: Hooded Vultures flying high over the campus were counted once when the first flying one was seen, and flying birds were not recorded again during that count; birds seen in trees or on the ground rarely moved during a count and their size and the open aspect of the campus minimised any risk of counting the same birds more than once, because it was easy to see when a vulture took flight.

Results

Hooded Vultures were seen on or over the study campus on 816 of the 831 days (98.2 %) for which presence or absence was recorded. One Hooded Vulture nest about forty feet up in a *Casuarina* tree on the campus was attended throughout the study period.

During the 79 circular walks, 157 Hooded Vultures were seen (mean 2.07 per walk, 95 % confidence interval 1.19–2.97) (Fig. 1).

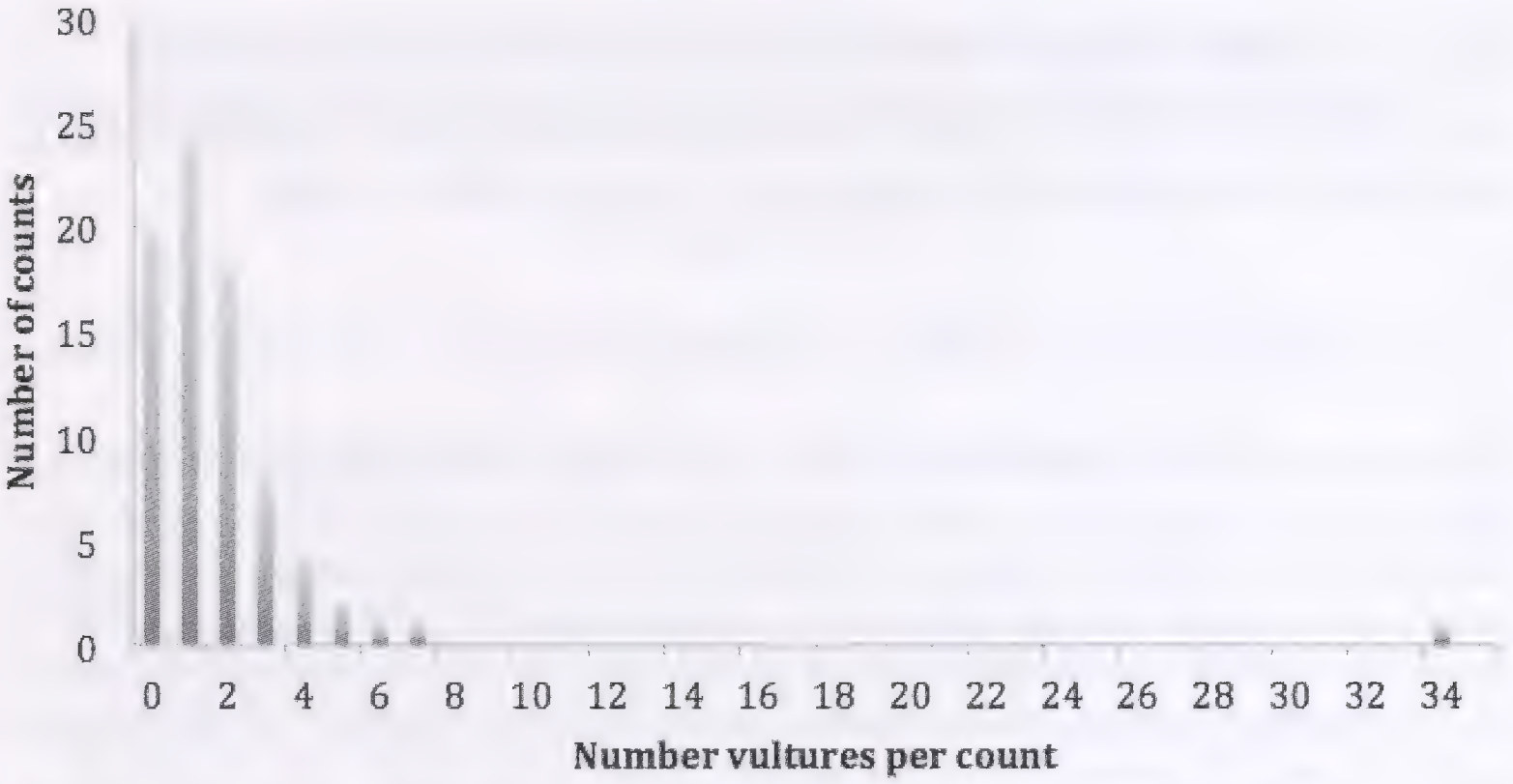

Figure 1. Numbers of Hooded Vultures seen during 79 circular walks.

No Hooded Vultures were seen during 20 of the 79 circular walks (25.3 %), although Hooded Vultures were seen on the campus at other times during 19 of those 20 days. Twelve (60 %) of the 20 zero counts were during a wet season and eight (40 %) during dry seasons (not statistically significant).

The 79 counts show little annual variation in numbers (Fig. 2), the only exception being in May 1979, when one count (out of three that month) included 34 vultures

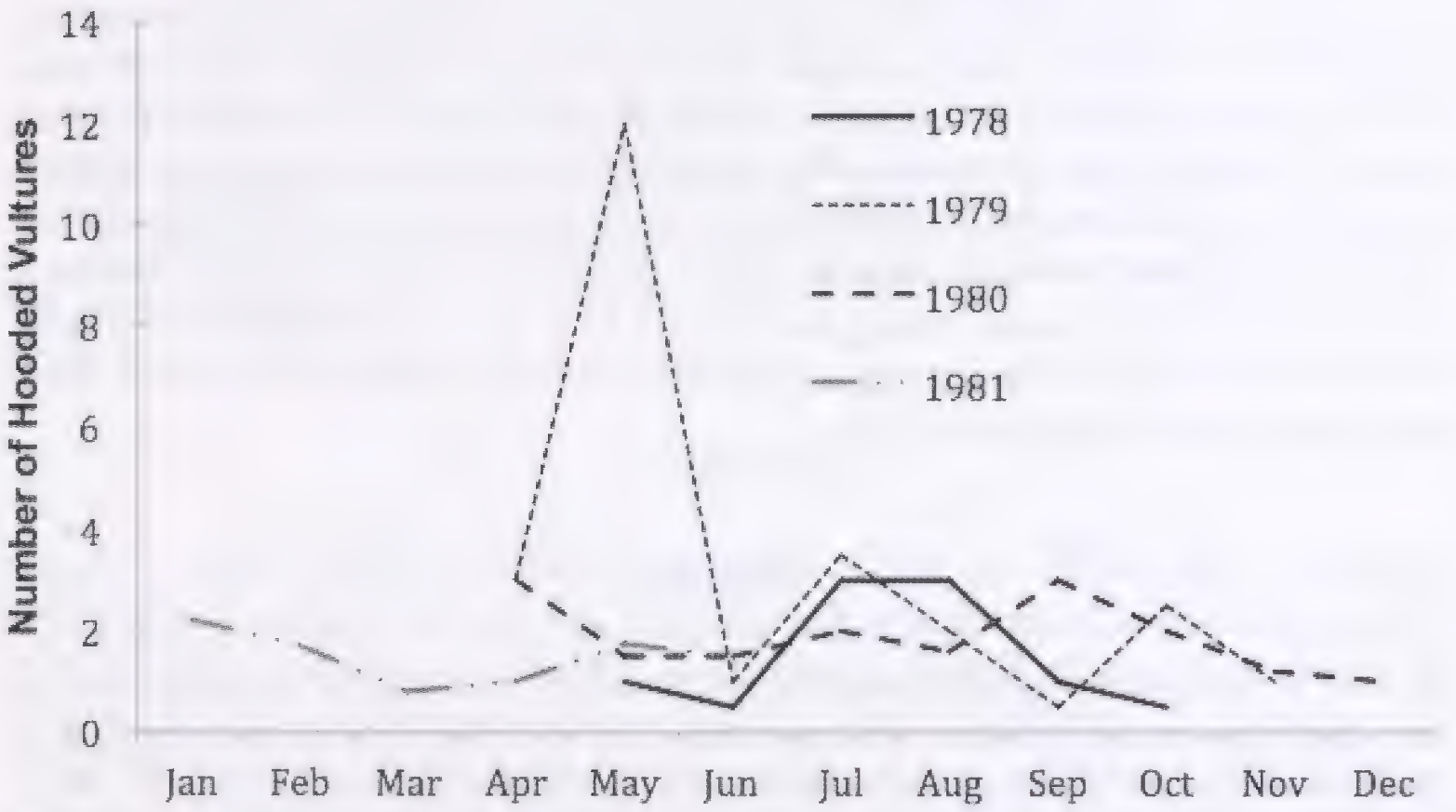

Figure 2. Monthly means of numbers of Hooded Vultures counted during 79 circular walks over 33 months.

recorded 90 minutes after a termite emergence (the other two counts that month were both of single birds).

The emergence of huge numbers of large alate termites (species unknown) was observed four times during the 33 month study, after short periods of rain early in the wet season (17 Hooded Vultures attracted to an emergence on 28 Jun 1978; 27 on 2 Aug 1978; five at a smaller and shorter lived emergence on 13 Jun 1980; two separate groups of 24 and 10 Hooded Vultures observed on the ground during a circular walk, 90 min. after a large termite emergence on 10 May 1979). On each occasion the event was relatively short (< 30 min.). Typically, vultures attending emergences lumbered about on the ground with neck outstretched and taking the emerging termites on the ground whilst a few chased termites as they took flight by flapping up to 1 m off the ground. The termites were large and not agile, and the Hooded Vultures caught many.

Discussion

Hooded Vultures were resident on the campus throughout the study, and were recorded on 98.2 % of observation days, suggesting that their absence during 20 of the 79 circular walks was probably caused by their having been attracted to feeding opportunities away from the campus during the time the 20 counts were taken.

Barlow & Fulford (2013) reported 2.91 Hooded Vultures per km of their 10 km transect through a nearby area in 2005, and concluded that the species was abundant in coastal Gambia. The data presented here show an average of 2.07 birds within the 24 ha campus over a period of 33 months, with numbers varying between none and one count of 34. Whilst the methods used in the two studies were different, and do not allow direct comparison, the numbers of Hooded Vultures in 1978–81 and 2005 seem broadly comparable.

There was little seasonal variation in numbers except in May 1979, owing to one count of 34 vultures recorded immediately after a termite emergence.

The number of Hooded Vultures at a given location is significantly influenced by feeding opportunities, including those created by human activities, and Hooded Vulture is not known to be territorial (Brown *et al.* 1982). With an average Hooded Vulture population on the 24 ha campus of two birds, the observations of 5, 17, 27 and 34 Hooded Vultures after termite emergences demonstrate the mobility of the vultures, and add weight to the conclusion that the Hooded Vulture was an abundant resident in the area during the period 1978–81. There was one Hooded Vulture nest on the campus throughout the study period but more recently there have been up to seven nests there (C.R. Barlow pers. comm.). Furthermore the presence of a fish landing site near the campus (which was not present in 1978–81) currently attracts significant numbers of Hooded Vultures (C.R. Barlow pers. comm.). The evidence, though anecdotal, is that Hooded Vultures have been abundant in the coastal area of The Gambia during the past 40 years, and may have increased in numbers during this

period. The human population of The Gambia increased from 569,000 in 1978 to 641,000 in 1981 and 1,882,000 in 2013 (<www.populstat.info/Africa/gambia> consulted 27 Jan 2015), with intense urbanisation within the area of these two studies, and a consequent increase in urban waste, which may have favoured Hooded Vultures.

The decrease in Hooded Vulture populations in other African countries has been attributed to the killing of vultures for bush meat, the installation of pylons and high-voltage power lines, and the introduction of cleaner facilities for processing fish and livestock (Odino *et al.* 2014, Ogada *et al.* 2015). As information on Hooded Vulture populations in The Gambia continues to be collected it would be useful to add to the studies assessments of food sources and threats.

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Observations ornithologiques au Sénégal

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Résumé

Nous présentons des observations faites au Sénégal en janvier 2015. Cinq observations d'espèces rares sont décrites: un Onoré à huppe blanche *Tigriornis leucolopha* dans le delta du Saloum, un Hibou des marais *Asio flammeus* dans le Parc National des Îles de la Madeleine, un Engoulevent du désert *Caprimulgus aegyptius* dans le Parc National des Oiseaux du Djoudj, un Martin-pêcheur azuré *Alcedo quadribrachys* dans le Parc National du Niokolo-Koba, et un Sirli du désert *Alaemon alaudipes* dans la réserve du Ndiael. La prédation d'un Héron garde-bœufs *Bubulcus ibis* par un Aigle Martial *Polemaetus bellicosus*, ainsi que l'histoire de vie d'une Barge à queue noire *Limosa limosa* baguée, sont rapportées.

Summary

Ornithological observations in Senegal. We present observations made in Senegal in January 2015. Five sightings of rare species are described: a White-crested Tiger Heron *Tigriornis leucolopha* in the Saloum delta, a Short-eared Owl *Asio flammeus* in Madeleine Islands National Park, an Egyptian Nightjar *Caprimulgus aegyptius* in Djoudj National Park, a Shining-blue Kingfisher *Alcedo quadribrachys* in Niokolo-Koba National Park, and a Greater Hoopoe Lark *Alaemon alaudipes* in the Ndiael reserve. The predation of a Cattle Egret *Bubulcus ibis* by a Martial Eagle *Polemaetus bellicosus*, and the life history of a ringed Black-tailed Godwit *Limosa limosa*, are presented.

L'Association des Naturalistes des Yvelines (France) a parrainé un voyage ornithologique au Sénégal et en Gambie du 14 au 28 janvier 2015, voyage organisé

par le Groupe d'Intérêt Economique des Guides du Parc National du Niokolo-Koba (Kouyaté *et al.* 2014). Plusieurs observations particulières de ce voyage, auquel les quatre premiers auteurs ont participé, sont rapportées ci-dessous.

***Tigriornis leucolopha* Onoré à huppe blanche**. Un adulte a été observé le 15 jan (Fig. 1A) près de Toubacouta (Sénégal) dans la mangrove au bord du bolong Bandiala dans le delta du fleuve Saloum (13°50′N, 16°30′W). Ce héron est un rare résident des mangroves dans les bassins des fleuves Gambie et Casamance, fréquentant également les rivières de forêts dans d'autres secteurs d'Afrique de l'Ouest (Barlow & Wacher 1997). Depuis plusieurs années il a été observé régulièrement et en toute saison dans Baobolon Wetland Reserve en Gambie (13°28′N, 15°48′W) où il se reproduit (CRB obs. non-publ.). Dans le delta du Saloum, séparé de la mangrove du Baobolon par plus que 80 km de savane et de terrains agricoles assez secs, il n'a été observé que deux fois auparavant: en jan 1980 (Dupuy 1981) et en oct 2004 (Demey 2005).

***Polemaetus bellicosus* Aigle martial**. Le 21 jan nous avons surpris un adulte de ce rapace quasi menacé (UICN: NT) s'envolant subitement à quelques mètres de nous de sa cachette sous des arbres en marge de la mare de Sitandi au Parc National du Niokolo-Koba, Sénégal (13°3′N, 13°10′W), où il dévorait un Héron garde-bœufs *Bubulcus ibis* fraîchement tué. Le régime de l'Aigle martial comprend principalement des mammifères, des oiseaux et des reptiles de moins de 5 kg, mais il varie considérablement en fonction de la disponibilité des proies et du milieu; les hérons figurent parmi les proies mais n'en représentent qu'une très faible proportion (Boshoff *et al.* 1990, Ferguson-Lees & Christie 2001). Nous n'avons pas trouvé de mention antérieure de prédation du Héron garde-bœufs par l'Aigle martial.

***Limosa limosa* Barge à queue noire**. Le 28 jan dans une petite étendue brûlée au Technopôle de Dakar, Sénégal (14°46′N, 17°25′W), nous avons vu une dizaine de Barges à queue noire en train de rechercher de l'alimentation souterraine, apparemment des racines tubéreuses (Fig. 2). Une des barges porte une bague identifiée T25 (lisible dans la photo originale), ainsi qu'un anneau vert sur le tibia gauche, ce qui signifie qu'elle avait été baguée au nid aux Pays-Bas en 2013 (JCEWH données non-publ. du Conservation Ecology Group, Université de Gronigen). L'oiseau est retourné sur la zone de reproduction en 2014 (JCEWH obs. non-publ.), ce qui est notable parce que l'on a longtemps cru que les Barges à queue noire ne revenaient sur les sites de reproduction que dans leur troisième année calendaire (Beintema *et al.* 1997). L'observation de cette espèce au Technopôle est classique pour cette période de l'année, puisque nombre de Barges à queue noire arrivent sur leurs sites principaux de halte migratoire dans la péninsule ibérique en janvier (Zwarts *et al.* 2012). La photo (Fig. 2) indique que les quatre oiseaux vus de profil étaient en mauvaise forme physique comme le montrent leurs silhouettes abdominales concaves (Wiersma & Piersma 1995). La difficulté à s'engraisser suffisamment avant d'entamer la prochaine étape de leur migration pourrait expliquer le fait que l'oiseau bagué n'a pas été revu sur la zone de reproduction en 2015 (JCEWH obs. non-publ.). Pendant

leur migration en Afrique de l'Ouest, les Barges a queue noire se nourrissent majoritairement de grains de riz, mais également de graines sauvages, de petite macrofaune et d'insectes (Altenburg & Kamp 1985, Zwarts *et al*. 2012); dans des conditions de pénurie alimentaire elles ont été observées en train de manger des racines tubéreuses de graminées communes (Hooijmeijer *et al*. 2014).

***Asio flammeus* Hibou des marais**. Ce migrateur paléarctique peu commun dans le delta du fleuve Sénégal, mais rare ailleurs en Sénégambie (Borrow & Demey 2011), a été vu vers 12h30 le 24 jan dans le Parc National des Îles de la Madeleine, Sénégal (14°39′N, 17°28′W). L'oiseau était posé dans la végétation basse et a été dérangé par le passage de visiteurs. Il a effectué un survol de la zone (Fig. 1B) puis s'est posé de façon à surveiller les personnes présentes. Il a ensuite redécollé pour se poser un peu plus loin, dans un secteur masqué par le relief. Les motifs contrastés du manteau et les yeux jaunes ont permis de le distinguer aisément du Hibou du Cap *A. capensis*. Les seules observations antérieures confirmées au Sénégal au sud du bassin du fleuve

Figure 1. A: Onoré à huppe blanche *Tigriornis leucolopha*, delta du fleuve Saloum le 15 janvier 2015 (cliché J. Rose). B: Hibou des marais *Asio flammeus*, Parc National des Îles de la Madeleine, 24 jan 2015 (cliché J.F. Magne). C: Engoulevent du désert *Caprimulgus aegyptius*, Parc National des Oiseaux du Djoudj, 25 jan 2015 (cliché J.F. Magne).

Figure 2. Barges à queue noire *Limosa limosa*, Technopôle de Dakar, 28 jan 2015 (cliché O. Eyraud).

Sénégal ont été dans les environs de Dakar en 1976 (Morel & Morel 1990) et à Palmarin en 1992 (Sauvage & Rodwell 1998). A propos des observations plus récentes qui suivent, il faudrait se méfier d'une possible confusion avec *A. capensis*, parce que les observateurs ne donnent pas assez de détails nécessaires, surtout quand il s'agit d'une observation uniquement d'un sujet en vol: un individu aux Îles de la Madeleine (Sénégal) en nov 2014 (<http://turacobirding.com/blog/>); en Gambie (Western Region), deux observations au début de 2003 (Demey 2003, 2004a) et un sujet débusqué de la brousse à Kartong (13°5′N, 16°46′W) le 30 oct 2014 (<http://www.kartongbirdobservatory.org/index.php/news>, C. Cross & O.J.L. Fox, com. pers.).

***Caprimulgus aegyptius* Engoulevent du désert**. Un individu de cette espèce a été surpris vers 12h00 le 25 jan 2015 dans une zone arbustive sèche du Parc National des Oiseaux du Djoudj, Sénégal (16°22′N, 16°12′W). L'oiseau a été observé posé et en vol à très courte distance. Le plumage est gris beige très pâle, de ton sable, donnant l'impression d'un oiseau presque blanchâtre dessous (Fig. 1C). Les couvertures sous-alaires sont très claires avec seulement la pointe de l'aile sombre. La seule caractéristique remarquable est la présence de fines barres sombres sur le dessus des rémiges et des rectrices. Aucune grande marque noire ou blanche n'est visible sur le dessus des rémiges primaires ou la queue. La combinaison de la taille, silhouette et

coloration du plumage ont permis de l'identifier sans ambiguïté. Morel & Roux (1966) ont rapporté que l'Engoulevent du désert leur "est apparu commun" aux environs de Richard Toll (16°28′N, 15°41′W) où un gîte diurne abritant une cinquantaine d'oiseaux a été observé en déc 1964 et en fév 1965. Un individu a été observé de près et photographié dans le Parc National des Oiseaux du Djoudj en jan 2008 (Demey 2008, N. Borrow com. pers.). Notre guide, qui a 19 années d'expérience dans le nord du Sénégal, ne connaît qu'une seule autre observation récente, qu'il a réalisée en fév 2010 dans le secteur de notre observation (I. Ndiaye com. pers.). Morel & Morel (1990), en citant Morel & Roux (1966), notaient que l'Engoulevent du désert était un migrateur paléarctique assez commun de déc à fév aux environs de Richard Toll. D'après nos recherches il nous semble que l'espèce devrait être considérée comme rare au Parc National des Oiseaux du Djoudj; quant à sa présence à Richard Toll à une cinquantaine de kilomètres à l'est, nous n'avons pas trouvé de mention d'observation récente dans cette zone.

Alcedo quadribrachys **Martin-pêcheur azuré**. Un individu a été observé le 20 jan sur le fleuve Gambie dans le Parc national du Niokolo-Koba, Sénégal (13°1′N, 13°17′W); il est passé en vol direct bas à quelques mètres des observateurs postés sur un bateau. En comparaison du Martin-pêcheur huppé *A. cristata*, observé à plusieurs reprises ce jour-là, les caractéristiques suivantes ont été relevées: taille un peu plus grande, parties supérieures d'un bleu profond jusqu'à la tête, tête bleue à gorge blanche sans coloration rousse sur les parotiques, bec noir (détail de la base des mandibules non observé). Ces caractéristiques ont permis d'identifier un Martin-pêcheur azuré malgré la brièveté de l'observation, compensée par une bonne lumière et une distance réduite. Il n'y avait auparavant que deux observations publiées de l'espèce dans le Parc national du Niokolo-Koba, pendant la saison des pluies en 1986 (Morel & Morel 1990) et pendant la saison sèche en 1989 (Sauvage & Rodwell 1998), puis une autre observation d'un sujet sur une petite rivière dans le Parc en saison sèche en déc 2004 (Demey 2004b). Plus récemment, un individu a été observé et photographié sur le fleuve Gambie dans le Parc le 4 juil 2015, donc pendant la saison des pluies (J. Delannoy com. pers.). Le statut actuel de cette espèce dans le Parc reste donc à déterminer plus précisément. Cette espèce a été longtemps considérée en Sénégambie comme migratrice peu commune pendant la saison des pluies, limitée surtout à la Basse Casamance et au bas bassin du fleuve Gambie (Morel & Morel 1990, Barlow & Wacher 1997). Par la suite, elle a été observée à plusieurs reprises en avr 2005 sur la rive du fleuve Gambie dans la réserve forestière communautaire de Kunkilling (13°31′N, 14°43′W) située en Central River Region de la Gambie (CRB rapport non-publ. pour le Dép. des Forêts de la Gambie), et sa reproduction a été confirmée dans River Gambia National Park (13°38′N, 14°57′W), aussi en Central River Region, avec l'observation documentée par photographie de jeunes volants bien développés en oct 2009, donc à la fin de la saison des pluies (M. Selinsky & P. Banks com. pers.); le Martin-pêcheur azuré et donc presque certainement résident dans River Gambia National Park est peut-être bien plus largement en Central River Region.

***Alaemon alaudipes* Sirli du désert**. Le 26 jan, dans le paysage désertique de la réserve du Ndiael à mi-chemin entre Saint-Louis et Richard Toll, Sénégal (16°17′N, 16°3′W), un Sirli du désert (Fig. 3) se déplaçait par terre sur une centaine de mètres en compagnie d'un Courvite isabelle *Cursorius cursor* avant que les deux ne se séparent. Les déplacements des deux oiseaux n'étaient ni linéaires ni pressés, et semblaient être surtout orientés vers la recherche de nourriture. Aucun comportement ouvertement coopératif n'a été observé. Le Sirli du désert est un assez rare migrateur du Sahara, non reproducteur au nord-ouest du Sénégal (Borrow & Demey 2011). Les premières observations datent des saisons sèches (hivers) de 1974–5 et de 1977–8 (Morel & Ndao 1978); ces auteurs ont postulé que l'apparition de cette espèce du désert était liée au climat sec qui régnait sur le Sénégal, en particulier en 1972, ce qui avait profondément affecté la végétation du secteur. Deux sujets ont par la suite été observés sur une steppe près du lac Retba (environ 15°N) en avr 1981 (Morel & Morel 1990) et un autre aux Îles de la Madeleine en oct 1992 (Sauvage & Rodwell 1998), tandis que Demey (2002) en mentionnant l'observation d'un individu dans la réserve du Ndiael en jan 2002, a remarqué que cette espèce avait été régulièrement observée dans la réserve pendant les trois années précédentes. D'autres individus ont été observés et photographiés dans la réserve du Ndiael en jan 2014 (F. Bacuez <http://ornithondar.blogspot.sn/2014/01/6-ndiael-une-journee-deserticole-et.html>) et en mai 2015 (F. Bacuez <http://ornithondar.blogspot.sn/2015/05/11-ndiael-autour-du-canal-de-bombol-et.html>). Il y eu à Saint-Louis une rupture dans le régime pluviométrique

Figure 3. *Alaemon alaudipes* Sirli du désert, Réserve du Ndiael, 26 jan 2015 (cliché J.F. Magne).

vers 1970, où la moyenne de précipitation annuelle décrut de 375 mm à 216 mm (Dacosta *et al.* 2002), et une seconde rupture, cette fois-ci vers une pluviométrie plus importante, eut lieu à un moment entre 1986 et 2007 (Bodian 2014). Ces tendances pourraient bien expliquer l'arrivée des Sirli du désert dans le nord-ouest du Sénégal dans les années 70, et éventuellement aussi l'absence d'observations documentées entre 2003 et 2013.

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High population density of the Critically Endangered Hooded Vulture *Necrosyrtes monachus* in Western Region, The Gambia, confirmed by road surveys in 2013 and 2015

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Summary

We present results from two series of roadside counts of Hooded Vultures *Necrosyrtes monachus* in the Western Region of The Gambia in 2013 and 2015. We counted 1543 Hooded Vultures, or 12.0 individuals per km in 2013, and 3416 individuals, or 17.5 individuals per km in 2015. To our knowledge our counts of Hooded Vultures, a species currently listed as Critically Endangered globally, reflect the highest current regional density for the species anywhere in its range.

Résumé

Densité élevée du Vautour charognard *Necrosyrtes monachus*, en Danger critique d'extinction, dans la Western Region de Gambie, confirmée par des enquêtes routières en 2013 et 2015. Nous présentons les résultats de deux séries de comptages en bord de route du Vautour charognard *Necrosyrtes monachus* dans la Western Region de Gambie en 2013 et 2015. Nous avons compté 1543 Vautours charognards, ou 12.0 individus par km, en 2013 et 3416 individus, ou 17.5 individus par km, en 2015. À notre connaissance, nos comptages de Vautours charognards, une espèce figurant actuellement sur la liste des espèces globalement en Danger critique, reflète la densité régionale actuellement la plus élevée pour l'espèce dans toute son aire de répartition.

Introduction

Hooded Vultures have undergone global population declines estimated at 62% over the past half century (Ogada & Buij 2011), and the species is now considered Critically Endangered (Parnell 2015). Nevertheless, road counts in the Western Region of The Gambia in December 2005 indicated that Hooded Vultures were "locally abundant" there (Barlow & Fulford 2013). An additional report indicated that they remained so as recently as 2012 (Barlow 2012). Because of global concern for this species (Ogada & Buij 2011, Ogada *et al.* 2015a, b) we present results of an continuing monitoring scheme in Western Region, and call for a concerted effort to protect the dense population of Hooded Vultures in the area.

Methods

We counted Hooded Vultures along three survey routes totalling 129 km of largely tar roads throughout Western Region (*c.* 600 km^2; Fig. 1) in late September and early October 2013. In 2015, we added an additional 66-km coastal route in the same area and counted birds along 195 km in early July. We travelled at speeds of 30–40 kmh^{-1}, and limited counts to rainless periods at times of the day (*i.e.* 9h30–15h30) when vultures were likely to be seeking foraging opportunities, rather than moving to and from nocturnal roosts. We used a non-observer driver and 3–4 observers and data loggers. We recorded percent cloud cover, wind and temperature at the beginning and end of each survey, and recorded all birds seen perched and flying. We stopped when needed to identify distant birds, as well as to count the numbers of large aggregations on the ground or soaring, but when stopped, we included only those birds initially observed while travelling and not any additional birds sighted after stopping.

Results

We counted a total of 4959 vultures along 324 km of road in 2013 and 2015 (Fig. 2). Mean counts were 12.0 individuals per km in 2013, and 17.5 individuals per km in 2015. In 2013, 87 % of the birds seen were flying and the rest were perched when first sighted. In 2015, 67 % of the birds seen were flying when first sighted. Since all surveys were conducted on rainless, low-wind days, we do not believe that weather conditions caused differences between counts. Although we counted more than twice as many vultures on Survey Route 2 in 2015 as we did along the same route in 2013, we attribute this inter-annual difference in counts along this route to random variation rather than to a population increase.

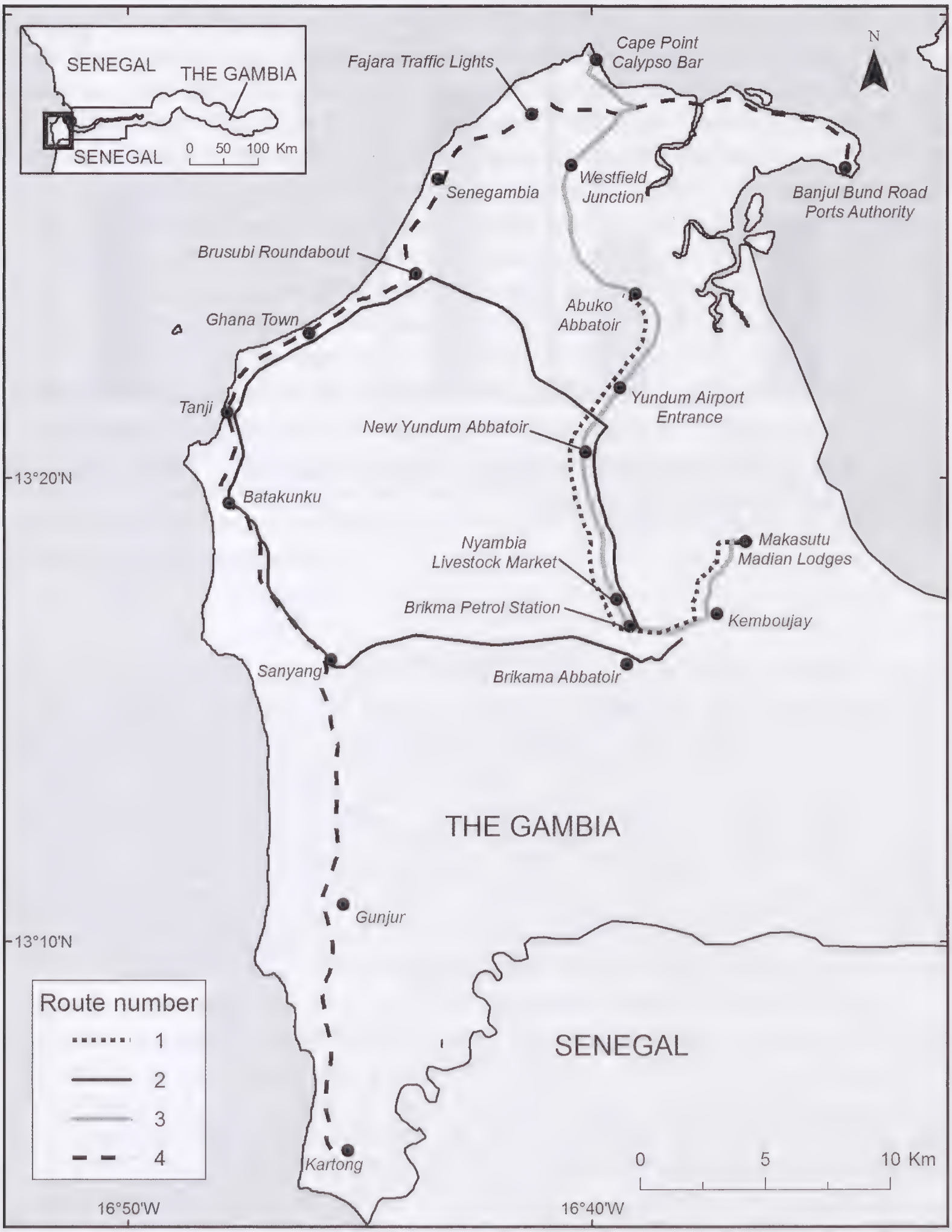

Figure 1. Map of the study routes surveyed in Western Region, The Gambia in 2013 and 2015.

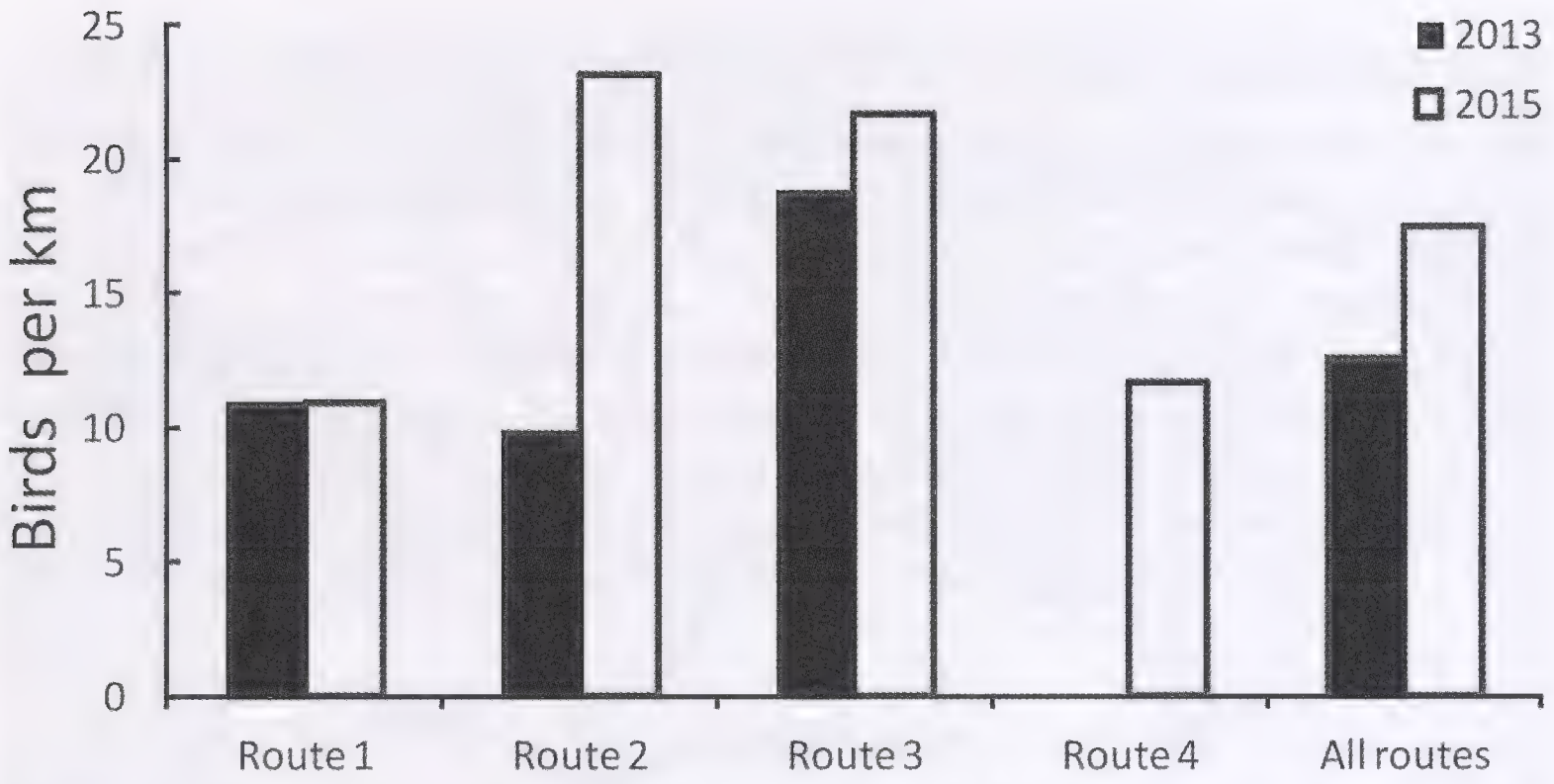

Figure 2. Numbers of Hooded Vultures counted along three survey routes in 2013 and four survey routes in 2015.

Discussion

Recent roadside counts along a 10.1-km route in and around Banjul in mid- to late 2005 produced counts averaging 2.9 individuals per km (Barlow & Fulford 2012). Our counts over a larger part of Western Region produced results of 12.0 birds per km in 2013 and 17.5 birds per km in 2015. More extensive roadside surveys in other parts of the species' historic population stronghold of West Africa, including in Niger, Mali, Burkina Faso, Guinea, Chad, and northern Cameroon (Thiollay 2006a, b, Rondeau *et al.* 2008, Wacher *et al.* 2013), and elsewhere in Africa, including Ethiopia (Dellelegn & Abdu 2010), Kenya (Virani *et al.* 2011), Uganda (D. Pomeroy *in* Ogada & Buij 2011), and Tanzania (Njilima *et al.* 2010), have all produced counts of less than 0.6 birds per km, more than an order of magnitude less than our counts.

Assuming we saw all birds within 0.5 km of the road, our counts in an area of *c.* 600 km^2 suggest population densities of 7,000–10,500 Hooded Vultures in this part of The Gambia, or 4–5 % of the currently estimated global population, in an area that represents less than 0.0001 % of the species' range (Ferguson-Lees & Christie 2001). This extraordinarily high population indicates that the region currently serves as a stronghold for the species. We suggest that this is so for at two reasons. First, as is true throughout West Africa, the species is a human commensal in The Gambia (Mundy *et al.* 1992). Gambia's human population density is the second highest in continental Africa (United Nations 2008) and much of the nation's human population resides in the fishing communities along the coast and near the capital of Banjul and the major towns of Serrekunda and Brikama. Second, Gambians tolerate and even welcome Hooded Vultures and do not harass or exploit them for fetish purposes (*cf.*

Barlow & Fulford 2013). As a result, the birds are relatively fearless of humans and regularly occur in large groups in human-dominated landscapes, including house yards, busy fish-landing sites where they eat moribund fish by-catch, and often on roadsides where they feed within 2 m of people, on domestic animal road kills, scraps and, importantly, blood and ruminant stomach contents dumped purposely for vultures at villages. Up to 70 Hooded Vultures are regular visitors at such open-air abattoirs, while at larger government abattoirs up to 500 vultures are regular visitors (CRB, LS, MJ, pers. obs.). In addition, several tourist hotels have recently opened "vulture restaurants" to provide photo opportunities for guests, with 150 vultures in regular attendance (Barlow 2012). Another likely factor contributing to the species' abundance is that it is the only common vulture in Western Region — indeed it was the only vulture species seen on our surveys — and, as such, is not subject to competition from larger species (*cf.* Mundy *et al.* 1992).

We plan to alert authorities and local communities in The Gambia to the global significance of the vulture population and of its role in ecosystem processes and function, and we intend to continue our road surveys and expand them to monitor populations throughout The Gambia, as well as in neighbouring Senegal, which has yet to be surveyed in this way.

Acknowledgments

The Government of The Gambia, and Mr. Momodou Lamin Kassama (Director of the Department of Parks & Wildlife Management), graciously facilitated our work. David Montrieul and Tony Fulford assisted in the 2013 counts. Personnel from the Department of Parks & Wildlife Management drove the routes in 2015. David Barber created the map. Two anonymous referees helped improve our presentation. Hawk Mountain Sanctuary thanks the family of Sarkis Acopian and, in particular, the Wallace Research Foundation, for supporting our work financially. This is Hawk Mountain Sanctuary contribution to conservation science number 260.

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Short Notes — Notes Courtes

An ethno-ornithological contribution: four traditional bird stories from the Gourmantché

Names and stories of birds in African languages are disappearing as African society changes (Gispen 2015). Even in the smallest rural villages, recounting of traditional stories is nowadays often replaced by modern entertainments such as watching television, and the passing on of traditional bird names and bird stories is impaired (S. Anderson pers. comm.). At the same time, knowledge of the names and role of birds in local cultures can improve the effectiveness of conservation and advance scientific knowledge (Berkes 1999). People with no prior interest in birds may become interested once they realise that birds are part of their own cultural heritage. For these reasons, namely the conservation of local cultural heritage and of the birds themselves, it is important that information on names and stories of birds in African languages and cultures be collected and recorded. In this article we present four traditional birds stories from the Gourmantché, a people also known as Gurma or Gourma, who live mainly in SE Burkina Faso around Fada N'Gourma, and also in SW Niger, N Benin and N Togo; they number approximately 1,750,000. The first three stories were told by FO and the last by TT, during a bird course for the ecoguides of W International Park. This park is shared and jointly managed by Bénin, Burkina Faso and Niger. FO later wrote down the stories in French and JB edited and translated them.

Pourquoi le Héron garde-bœufs *Bubulcus ibis* est blanc

Autrefois, le Héron garde-bœufs était de plumage noire. Tellement qu'il aimait beaucoup la migration, il fut appelé par Dieu. "Tiens ce troupeau de bœufs que je te confie en garde." Il gardait ainsi les bœufs chaque jour, faisant la transhumance, aller et retourner. Très content de son métier, le garde-bœuf enlevait les tiques et puces qui se fixaient à ses animaux.

Pour montrer sa gratitude envers lui, dieu l'appella un jour et lui demanda: "Quelle recompense veux-tu que je te fasse?" Etant donné qu'il a un grand amour pour dieu, il réponda: "Habillez-moi en boubou [robe traditionelle] blanc!" Et tout de suite, il se transfera en blanc. Ravis de son état, le Héron garde-bœuf se convertit en musulman. C'est pourquoi il ne mange jamais un insecte sans le remuer en disant "tu es mort ou vivant?" pour éviter le risque de commettre un péché par la consommation d'un proie pas tué rituellement.

Why the Cattle Egret *Bubulcus ibis* is white

In the past, the Cattle Egret had black plumage. As he liked migrating so much, he was called by God. "Here is a herd of cattle, which I entrust to you to watch over." And so he kept watch over the cattle every day, travelling with them out and back.

Very happy with his job, the Cattle Egret took off the ticks and lice that had attached themselves to the animals.

To show his gratitude towards him, God one day called the Cattle Egret and asked him: "What reward would you like me to give you?" As he had a great love of God, the Cattle Egret responded "Dress me in a white boubou [traditional robe]!" And immediately he became white. Delighted with his new condition, the Cattle Egret became a muslim. That is why he never eats an insect without shaking his head while saying "are you dead or alive?", to avoid committing a sin by consuming a prey that has not been ritually killed.

Comment le Corbeau pie *Corvus albus* est devenu pie

Il était une fois, la sécheresse s'installa sur la terre. Elle frappa le monde animal et végétal. Toutes les mares et les rivières furent taries. Ainsi, tous les oiseaux se réunissent pour prendre une décision afin de survivre. A l'issue de leur entretien, le Corbeau pie fût désigné pour transmettre leur message à Dieu d'envoyer de la pluie pour leur sécours.

Avant son départ, il remplissa un sac de farine blanche qu'il porta au cou. Il s'envola en direction du ciel et chanta "Kaar! Kaar!" se qui signifia "Au secours!" Pendant qu'il survola, la farine sortait et se couvrait sa poitrine et son cou. Voilà pourquoi le Corbeau pie a la poitrine blanche et un collier blanc. Et toute fois qu'il survole, il n'oublie pas de dire "Kaar! Kaar!", "Au secours ! Au secours!"

How the Pied Crow *Corvus albus* became pied

Once upon a time a drought came over the earth. It hit all the animals and plants. All the lakes and rivers ran dry. Thus all the birds came together to take a decision in order to survive. At the end of the meeting the Pied Crow was appointed to take their message to God to send rain to help them.

Before his departure, he filled a bag with white flour which he carried around his neck. He flew away in the direction of the heavens calling "Kaar! Kaar!", which meant "Help! Help!". As he flew upwards the flour fell out of the bag and covered his breast and collar. And when he flies he never forgets to call "Kaar! Kaar!", "Help! Help!"

Left to Right: Cattle Egret *Bubulcus ibis* (© Peter Karels); Pied Crow *Corvus albus* (© Linda Sharp); Hooded Vulture *Necrosyrtes monachus* (© Jean-Christophe Nyssens). All photos from the West African Bird DataBase <www.wabdab.org>.

Comment le Vautour charognard *Necrosyrtes monachus* a perdu les plumes sur sa tête

Jadis, le Vautour charognard était le plus beau des oiseaux. Il vivait avec le chef du village. Quand le chef n'était pas là, celui qui gardait le palais royal. Il gardait ainsi le palais. Voilà un jour qu'il tomba amoureux de la bien aimée du roi. Pendant qu'ils étaient en mouvement le chef vint les surprendre.

Pour le sanctionner, le chef le fît arracher jusqu'au cou. Il le déshabilla et l'habilla le boubou du boucher. C'est depuis ce jour qu'il est devenu noir-sal avec une tête chauve jusqu'au cou.

Cela signifie: toute tâche qu'on te confie, fais la avec prudence, et avec patience.

How the Hooded Vulture *Necrosyrtes monachus* lost the feathers on its head

A long time ago, the Hooded Vulture was the most beautiful of birds. He lived with the village chief. When the chief was not there, it was the vulture who guarded the royal palace. And so he guarded the palace. Then one day he fell in love with the king's favourite. As they were together the chief came back and surprised them.

To punish him, the chief had all his feathers to his neck taken off. He undressed him and dressed him in a butcher's boubou. It is since then that the vulture is dirty black with a bald head down to his neck.

The moral is: every task that you are entrusted with, fulfil it prudently, and patiently.

La poule et l'aigle

Autre fois, l'aigle et la poule étaient des amies. Ce fût un jour que l'aigle allait effectuer un long voyage. Son amie alla lui prêter une aguille pour coudre son vieux pagne. L'aigle l'eut remis et effectua son voyage.

La belle mère poule, ayant cousu son pagne perda l'aiguille de son ami. Quelques semaines après, revint l'aigle. "Bonjour, mon amie poule", "Bonjour cher amie aigle!", "Pourrais-je avoir mon aiguille?", "Désolée!" répondit la poule, "l'aiguille est perdue." "Perdue!" reprit l'aigle. L'aigle dit: "Comme tu as perdu mon aiguille, je prendrais tes enfants en attendant que tu trouve mon aiguille." C'est pourquoi la poule gratte la terre chaque jour à la recherche de l'aiguille perdue.

The chicken and the eagle

In the past, the eagle and the chicken were friends. One day the eagle was going to leave on a long trip. His friend wanted to borrow a needle from him to repair his old clothes. The eagle passed it to the chicken and went on his trip.

The beautiful mother hen, after having sewn her clothes, lost her friend's needle. Several weeks later the eagle returned. "Hello, my friend chicken.", "Hello, dear friend eagle!", "May I have my needle?", "So sorry!" said the chicken, "the needle is lost." "Lost!" responded the eagle. The eagle said: "As you have lost my needle, I will take your children while you find my needle." Which is why the chicken scratches the earth each day looking for the lost needle.

Steve Anderson, anthropologist formerly based in southern Niger, is thanked for discussing the need for the preservation of traditional bird names and stories. The bird course at which these stories were recounted was led by JB and AGS and funded by the World Tourism Organisation and the Ramsar Bureau.

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Errata

Congo Moor Chat *Myrmecocichla tholloni* in Boma, Democratic Republic of the Congo

In the list of species observed during my visit to the province of Bas-Congo, Democratic Republic of the Congo, in June and July of 2009 (Ayer 2011), I included Congo Moor Chat *Myrmecocichla tholloni* as having been seen in Boma. This was a misidentification and so should be removed from the list.

AYER, H.D.S. (2011) Some observations of birds and bird behaviour in Kinshasa and Bas-Congo Province, Democratic Republic of the Congo. *Malimbus* 33: 65–77.

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News & Comment — Nouvelles & Commentaires

The Pan-African Ornithological Congress (PAOC)

The 14th PAOC will take place this year in Dakar, Senegal, 16–21 October, with the theme "Global changes — threats and opportunities for birds". The PAOC is an organisation of professional and dedicated amateur ornithologists, which aims to promote the further study, conservation and appreciation of African birds, and disseminate information on African birds through congresses and their published proceedings. Congresses usually take place every four years, the first one being held in Livingstone, Zambia in 1957 and the most recent one in Arusha, Tanzania in 2012. PAOC14 will be the first congress to take place in a francophone country of West Africa.

Africa was the first continent to have its own "continental" ornithological congress, and the PAOC has played an important role in the development of ornithology in Africa. Of significance is its role in promoting African ornithologists and providing a forum for graduates and others to present their findings to an international audience.

The PAOC usually comprises a mix of plenary presentations and parallel symposia as well as a full day of field excursions. The technical sessions of PAOC14 will take place 17–21 October, split by a day of field visits to various sites within reasonable distance of Dakar. The congress venue is the Ngor Diarama Hotel, which, situated on the Cap Vert Peninsula, offers its own interest for ornithologists, with views out to the Ile de Ngor and the Atlantic Ocean.

Presentations at the PAOC can be made in French or English, and efforts are being made to ensure that at least some sessions will benefit from simultaneous translation. Abstracts and eventual papers may also be submitted in either French or English. Further information about the congress and submission of abstracts and registration are available at <www.paoc-africa.org>.

WAOS plans to have a stall at PAOC14 and to promote its journal *Malimbus*. We hope that a number of WAOS members will participate in the congress and that we can also boost our membership at this important event, especially given that it will take place in West Africa for the first time in 20 years.

Tim Dodman

Society Notices — Informations de la Société

W.A.O.S. membership changes
Changements à la liste d'adhérents de la S.O.O.A.

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Tim Dodman, Treasurer and Membership Secretary

West African Ornithological Society
Société d'Ornithologie de l'Ouest Africain

Revenue Account for the year ended 31 December 2015

Income	**£ Sterling**	**€ Euro**	**Total (£)**	**2014 (£)**
Subscriptions	1820	792	2403	2877
Interest and donations	0	0	0	0
	1820	792	2403	2877
Expenditure				
Malimbus production and distribution	2265	0	2265	3186
Bank charges and office costs	0	9	6	3
	2265	9	2271	3188
Surplus/deficit per account for year	–444	783	132	–311

Balance Sheet as at 31 December 2015

Bank balances at 1 January	2032	3202	4538	5065
Surplus/deficit for year	–444	783	132	–311
Transfer from Euro to Sterling account	0	0	-	-
Exchange rate gains/losses	-	-	–147	218
Bank balances at 31 December	£1588	€3985	*£4524	£4538

*Combined balance in £ Sterling as at 31 December (€1 = £0.737).

Notes

There was a surplus of £132 during 2015, mainly due to a lower cost for the production of *Malimbus*, despite a lower income from subscriptions. *Malimbus* costs were lower due to fewer pages in total and fewer printed in colour than the previous year. Subscription receipts were lower than in 2014 mainly due to a rather high number of payments received in late 2014 for both 2014 and 2015 together, following a campaign of reminders. The combined balance decreased from last year by £15, a result of the 2015 surplus of £132 set against a loss of £147 on the Euro balance of 1 Jan 2015 (due to

a decrease in the value of the Euro against the Pound from 0.783 on 1 January to 0.737 on 31 December). Any apparent errors of £1 in the above tables are due to rounding.

The sterling balance comprised £1971 in the bank and £61 in cash on 1 Jan 2015, and £1553 in the bank and £35 in cash on 31 Dec 2015.

Thanks to Nils and Marine Robin for managing the WAOS Euro account.

T. Dodman, Treasurer and Membership Secretary

Instructions to Authors

Malimbus publishes research articles, reviews and news about West African ornithology.

Papers and **Short Notes** must be original contributions; material published elsewhere, in whole or in part, will not normally be accepted. Short Notes are articles not exceeding 1500 words (including references) or four printed pages in length. Wherever possible, manuscripts should first have been critically scrutinised by at least one other ornithologist or biologist before submission. Manuscripts will be sent for critical review to at least one specialist reviewer.

Items for **News & Comment** should not exceed 1000 words.

Contributions are accepted in English or French; editorial assistance will be made available to authors whose first language is not one of these. Submission by email (attached file) is preferred. Consult the editor for further details, *e.g.* acceptable software.

All Papers (but not Short Notes) should include a **Summary**, not exceeding 5 % of the paper's length. The Summary should include brief reference to major findings of the paper and not simply review what was done. Summaries will be published in both English and French (or in the official language of the country in which the work was done) and will be translated as appropriate by the Editorial Board.

Format of tables, numbers, metric units, references, *etc.* should match recent issues. Note particularly: authors' names should be listed with surname (family name) last, with given names or initials preceding it (*e.g.* John A. SMITH); dates are written 2 Feb 1990 but months standing alone may be written in full; times of day are written 6h45, 17h32 and coordinates as *e.g.* 7°46′13″N (no leading zeros) or as decimal degrees with up to five decimal places (*e.g.* 1.23456°N), but not as decimal minutes; numbers up to ten are written in full, except when followed by abbreviated units (*e.g.* 6 m), numbers from 11 upwards are written in figures except at the beginning of a sentence. All references mentioned in the article, and only such, must be listed in the bibliography.

Taxonomic sequence and **scientific names** (and preferably also **vernacular names**) should follow either Borrow & Demey (2001, *Birds of Western Africa*, Christopher Helm, London) with names (but not sequence) as amended in Borrow & Demey (2014, *Birds of Western Africa*, Bloomsbury, London), or *The Birds of Africa* (Brown *et al.* 1982, Urban *et al.* 1986, 1997, Fry *et al.* 1988, Keith *et al.* 1992, Fry & Keith 2000, 2004, Academic Press, London), unless reasons for departure from these authorities are stated. However, the words "Common" and "African" should only be applied if they are part of a long-established common name.

Avifaunal articles must contain a map or gazetteer, including all localities mentioned. They should include brief notes on climate, topography, vegetation, and conditions or unusual events prior to or during the study (*e.g.* late rains *etc.*). **Species lists** should include only significant records; full lists are justified only for areas previously unstudied or unvisited for many years. Otherwise, include only species for which the study provides new information on range, period of residence, breeding *etc.* For each species, indicate range extensions, an assessment of abundance (see *Malimbus* 17: 36) and dated breeding records; indicate migratory status and period of residence only if revealed by the study. Where appropriate, put data in context by brief comparison with an authoritative regional checklist. Lengthy species lists may be in tabular form (*e.g. Malimbus* 25: 4–30, 24: 15–22, 23: 1–22, 1: 22–28, or 1: 49–54) or in the textual format of recent issues. A **more complete guide for authors** of avifaunal papers, including the preferred abundance scale, appeared in *Malimbus* 17: 35–39 and a fuller version of this may be found at (http://malimbus.free.fr/instmale.htm). The Editor will be happy to advise on the presentation of specific studies.

When designing **Figures**, and particularly font size, pay attention to *Malimbus* page shape and size. Figures prepared in a graphics package and saved at high resolution are preferred. Low-resolution files and poor-quality scans will not be accepted. Authors are encouraged to submit **photographs** that illustrate salient points of their article. Photographs should preferably be in colour and at high resolution. Figures and photographs should be supplied as graphics files (*e.g.* jpg or tif), and not pasted into a Word file. Consult the Editor for further advice.

A pdf file of Papers and Short Notes, and one paper copy of the issue in which they appear, will be sent to single or senior authors, *gratis*.

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